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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/519,639	02/08/2006	Jan Matthijs Jetten	0470-048036	9145

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THE WEBB LAW FIRM, P.C.
700 KOPPERS BUILDING
436 SEVENTH AVENUE
PITTSBURGH, PA 15219

EXAMINER	
CHAUDHRY, SAEED T	

ART UNIT	PAPER NUMBER
1792	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/519,639	JETTEN ET AL.	
	Examiner	Art Unit	
	Saeed T. Chaudhry	1792	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 February 2010*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *13,15-18 and 20-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *13 15-18 20-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application.
6) ☐ Other: _____.

DETAILED ACTION

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on February 25, 2010 has been entered. Claims 1-12, 14 and 19 have been canceled and claims 13, 15-18 and 20-24 are pending in this application for consideration.

New ground of rejection
Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.
>
> The factual inquiries set forth in Graham v. John Deere Co., 148 USPQ 459, that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:
>
> 1. Determining the scope and contents of the prior art.
> 2. Ascertaining the differences between the prior art and the claims at issue.
> 3. Resolving the level of ordinary skill in the pertinent art.
> 4. Considering objective evidence present in the application indicating obviousness or unobviousness.

Claims 13, 15, 17, 18 and 20-24 are rejected under 35 U.S.C. § 103 as being unpatentable over Mol et al. in view of Jennings and Fremont et al.

Mol et al. (6,274,186) disclose a method of cleaning residue from filtering membrane beverage system. The reference discloses that filters are involved, such as membrane filters used for filtering the products during the production of foodstuffs, such as milk (products), fruit

juices, beer, soft drinks (such as lemonades), cider, wine, sherry, port, distilled drinks and the like, the problem often occurs that apparatus must be cleaned after a certain period.

Conventional cleaning techniques, e.g. based on catalyzed oxidation, e.g. with a peroxide/metal (manganese) complex hypochlorite or hypobromite (see col. 1, lines 15-65). The reference fails to specify that membrane is a polymer membrane or a back flu at a rate of 0.5-100 liters.

In an analogous art Jennings (3,912,624) discloses that it is considered conventional to periodically back-flush the units and clean the membrane surfaces with a cleaning flow stream. It is also known and generally conventional in the membrane separation field to periodically make use of certain additives or cleaning agents. For example, in connection with the handling of certain food materials and in the processing of cheese to obtain protein and lactose, there can be the growth of fungus and bacteria on membranes and in headers or other parts of the equipment. In order to assure an uncontaminated clean system, there can be the use of a sanitizing solution added to a flushing fluid during the periodic cleaning procedure. Such solution may, for example, comprise a mild hypochlorous acid solution or an iodine-phosphoric acid complex, or various of the cleaning agents used in the dairy industry to remove molds and various bacteriological growths (see col. 1, lines 12-40). The reference fails to specifically remove protein or polyphenol from the membrane and membrane is made from polymer.

Fremont et al. (4,740,308) disclose a process of cleaning fouled separation membranes such as reverse osmosis (made from polymer) contacting with an inorganic peroxide and rinsing with alkali metal hydroxide. Wherein the pH is between 8.5 to 11 (see abstract, col. 1, line 4, col. 3, line 40-68 through col. 4, line 32 and claims). The reference fails to clean residues from filtering beverages.

It would have been obvious at the time applicant invented the claimed process to include a back flush the membrane as disclosed by Jennings in the process of Mol et al. since back flushing the membrane is known in the art for removal of contaminants from the surface of membrane and increase the production of the membrane. Further, Jennings and Mol et al. concerned with the same field of endeavor such as beverage filters. Therefore, one of ordinary skill in the art would have motivated to combine the teaching of both the references. Polymer membrane as disclosed by Fermont et al. are known to be used in the beverage for filtering and beverages contains proteins and polyphenols attached to the filters. Therefore, proteins and polyphenols are inherently removed in the processes of Jennings and Mole et al. as claimed herein. Fermont et al. also, disclose to clean polymer membrane with peroxide at pH of between 8.5 to 11. Therefore, one of ordinary skill in the art would have manipulate the pH of the cleaning solution with routine experimentation for efficient results. Substituting peracid with hydrogen peroxide is convention in the cleaning art. Back flush with 0.5-100 liters of the solution per h per m of filter surface would have been obvious to manipulate the flow rate for better and efficient cleaning, since no unexpected results are shown. Furthermore, on of ordinary skill in the art would have manipulate the time for back flush the cleaning process with routine experimentation. It would have been obvious at the time applicant invented the claimed process to use Jennings process for removing residue such as protein or polyphenol since Jennings discloses that it is conventional to remove fats and oil from the surface of membrane with hypochlorous acid. Further, Jennings disclosed fats which includes protein.

It would have been obvious to use alkaline solution as disclosed by Fremont et al. for rinsing membrane since one of ordinary skill in the art would use alkaline solution before or after using hypohalous acid for neutralizing the surface of membrane.

Claim 16 is rejected under 35 U.S.C. § 103 as being unpatentable over Mol et al. in view of Jennings and Fremont et al., as applied to claim 13 above, and further in view of Doddema et al.

Mol et al., Jennings and Fremont et al. were discussed supra. However, the references fails to disclose that the transition metal is complexed with polyamine.

Doddema et al (5,667,690) disclose method of removing phenols from waste water by treating with a complex of transition metal and a polyamine in the presence of peroxide, wherein peroxide is peracid (see abstract, col. 1, lines 32-46 and claims).

It would have been obvious at the time applicant invented the claimed process to incorporate polyamine in the process of Mol et al., since Doddema et al. disclose that phenols compounds are effectively removed by treating with a complex of transition metal and polyamine in the presence of peroxide. One would use the teaching of Doddema et al into the process of Mol et al. since both the references are in the same field of endeavor.

Claims 13-15, 17-18 and 23 are rejected under 35 U.S.C. § 103 as being unpatentable over Jennings in view of Fremont et al. and Schuchardt.

Jennings (3,912,624) discloses that it is considered conventional to periodically back-flush the units and clean the membrane surfaces with a cleaning flow stream. It is also known and generally conventional in the membrane separation field to periodically make use of certain

additives or cleaning agents. For example, in connection with the handling of certain food materials and in the processing of cheese to obtain protein and lactose, there can be the growth of fungus and bacteria on membranes and in headers or other parts of the equipment. In order to assure an uncontaminated clean system, there can be the use of a sanitizing solution added to a flushing fluid during the periodic cleaning procedure. Such solution may, for example, comprise a mild hypochlorous acid solution or an iodine-phosphoric acid complex, or various of the cleaning agents used in the dairy industry to remove molds and various bacteriological growths (see col. 1, lines 12-40). The reference fails to specifically remove protein or polyphenol from the membrane and membrane is made from polymer.

Fremont et al. (4,740,308) disclose a process of cleaning fouled separation membranes such as reverse osmosis (made from polymer) contacting with an inorganic peroxide and rinsing with alkali metal hydroxide. Wherein the pH is between 8.5 to 11 (see abstract, col. 1, line 4, col. 3, line 40-68 through col. 4, line 32 and claims). The reference fails to clean residues from filtering beverages.

Schuchardt (4,970,005) disclose a method of treating wastewater containing insoluble high molecular weight poly impurities by reacting wastewater with an oxidizing agent such as hydrogen peroxide and optionally with a transition metal catalyst, wherein the transition metals are iron, manganese and zinc. The pH of the stream is greater than 7 (see abstract , col. 3, lines 51-67 and claims).

It would have been obvious at the time applicant invented the claimed process to include a transition metal catalyst agent into the process of Jennings because Schuchardt discloses that transition metal catalyst degrade higher molecular weight to lower molecular weight. One of

ordinary skill in the art would use Jennings process for removing residue from the polymer membrane since Fremont et al. disclose that reverse osmosis membrane are made of polymers. Back flush with 0.5-100 liters of the solution per h per m of filter surface would have been obvious to manipulate the flow rate with routine experimentation for better and efficient cleaning, since no unexpected results are shown. Since all the references are in the same field of endeavor. Therefore, one of ordinary skill in the art would use Schuchardt teaching of using oxidizing agent and transition metal catalyst for disintegrating higher molecular weight to lower molecular weight in the water which provide motivation to use in the beverage residue of higher molecular weight to reduce to a lower molecular weight. Furthermore, on of ordinary skill in the art would have manipulate the time for back flush the cleaning process with routine experimentation.

Claim 16 is rejected under 35 U.S.C. § 103 as being unpatentable over Jennings in view of Fremont et al. and Schuchardt, as applied to claim 13 above, and further in view of Doddema et al.

Jennings, Fremont et al. and Schuchardt were discussed supra. However, the references fails to disclose that the transition metal is complexed with polyamine.

Doddema et al (5,667,690) disclose method of removing phenols from waste water by treating with a complex of transition metal and a polyamine in the presence of peroxide, wherein peroxide is peracid (see abstract, col. 1, lines 32-46 and claims).

It would have been obvious at the time applicant invented the claimed process to incorporate polyamine in the process of Jennings , since Doddema et al. disclose that phenols compounds are effectively removed by treating with a complex of transition metal and

polyamine in the presence of peroxide. One would use the teaching of Doddema et al into the process of Jennings since both the references are in the same field of endeavor.

Claims 20-22 and 24 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Jennings in view of Fremont.

Jennings (3,912,624) discloses that it is considered conventional to periodically back-flush the units and clean the membrane surfaces with a cleaning flow stream. It is also known and generally conventional in the membrane separation field to periodically make use of certain additives or cleaning agents. For example, in connection with the handling of certain food materials and in the processing of cheese to obtain protein and lactose, there can be the growth of fungus and bacteria on membranes and in headers or other parts of the equipment. In order to assure an uncontaminated clean system, there can be the use of a sanitizing solution added to a flushing fluid during the periodic cleaning procedure. Such solution may, for example, comprise a mild hypochlorous acid solution or an iodine-phosphoric acid complex, or various of the cleaning agents used in the dairy industry to remove molds and various bacteriological growths (see col. 1, lines 12-40). The reference fails to specifically remove protein or polyphenol from the membrane and membrane is made from polymer.

Fremont et al. (4,740,308) disclose a process of cleaning fouled separation membranes such as reverse osmosis (made from polymer) contacting with an inorganic peroxide and rinsing with alkali metal hydroxide. Wherein the pH is between 8.5 to 11 (see abstract, col. 1, line 4, col. 3, line 40-68 through col. 4, line 32 and claims). The reference fails to clean residues from filtering beverages.

It would have been obvious at the time applicant invented the claimed process use Jennings process for removing residue such as protein or polyphenol since Jennings discloses that it is conventional to remove fats and oil from the surface of membrane with hypochlorous acid. Further, Jennings disclosed fats which includes protein. Therefore, proteins are also inherently remove by the Jennings process. Furthermore, polymer membrane are well known in the art as disclosed by Fremont et al. in separation processes. Therefore, one of ordinary skill in the art would use Jennings process for removing residue for cleaning membrane. Back flush with 0.5-100 liters of the solution per h per m of filter surface would have been obvious to manipulate the flow rate with routine experimentation for better and efficient cleaning, since no unexpected results are shown.

It would have been obvious to use alkaline solution as disclosed by Fremont et al. for rinsing membrane since one of ordinary skill in the art would use alkaline solution before or after using hypohalous acid for neutralizing the surface of membrane. One would adjust pH between 11 and 14 for better and efficient results with routine experimentation and Fremont et al. suggested to use pH from 8.5 to 11. Furthermore, on of ordinary skill in the art would have manipulate the time for back flush the cleaning process with routine experimentation.

Response to Applicant's Arguments

Applicant argued that Schuchardt is not directed to treating membranes at all, but is instead directed to effectively neutralizing a waste water stream by adding thereto an oxidizing agent and optionally a transition metal catalyst.

This argument is not persuasive because as admitted by the applicant that the beverage filters contains polyphenols and proteins. Jennings discloses to clean the membrane filter by back

flushing, which includes removing polyphenols and proteins. Therefore, one of ordinary skill in the art would use the teaching of Schuchardt for the purpose of degrading the polyphenols to lower molecular weight fragments for removal From the surface of the membrane.

The applicant argued that the Office Action fails to explain where in the prior art the particular back-flush rate now defined in claims 13 and 20 is disclosed. The statement that it would be obvious to manipulate the flow rate is not supported by any evidence.

This argument is unpersuasive because Jennings discloses the claimed invention except for flow rate of the back wash. It would have been obvious to a person having ordinary skill in the art at the time the invention was made to find optimum flow rate for efficient cleaning, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller,* 220 F.2d 454, 105 USPQ 223 (CCPA 1955).

Applicant's arguments filed February 25, 2010 have been fully considered but they are not persuasive.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Saeed T. Chaudhry whose telephone number is 571-272-1298. The examiner can normally be reached on Monday-Thursday from 8:30 AM PM to 4:00 PM. The examiner can also be reached on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Barr, can be reached on (571)272-1414. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Saeed T. Chaudhry
Patent Examiner

/Michael Barr/
Supervisory Patent Examiner, Art Unit 1792